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Cancer Experts: New *JNCI* Diet-Cancer Study Not Conclusive

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My colleagues and I at the American Institute for Cancer Research (AICR) have read with great interest the cohort study appearing in the November 3 issue of the *Journal of the National Cancer Institute* (JNCI). The study's authors analyzed data from the ongoing Nurses' Health Study and concluded that among its subjects, fruits and vegetables were modestly protective against cardiovascular disease and not protective against cancer.

We at AICR feel it is important to note that the authors' finding in regard to cancer contradicts the preponderance of scientific evidence published to date. The landmark AICR/WCRF Expert Panel Report, *Diet, Nutrition and the Prevention of Cancer: a global perspective*, examined over 4,500 studies and concluded that evidence linking diets high in fruits and vegetables with lower risk for cancer was "convincing."

Each specific method used by scientists to study the diet has its own set of well-documented limitations, and cannot by itself offer a comprehensive picture. (This is why the AICR/WCRF Expert Panel Report chose to weigh evidence from all of the different types of scientific study together.) In an editorial accompanying the new *JNCI* study, Drs. Arthur Schatzkin and Victor Kipnis meticulously outline the many methodological and statistical issues that arise from cohort studies in general and the Nurses' Health Study in particular.

It is vital to place newly published research in a meaningful context. To that end, we wish to direct the public's attention to the most significant limitations of this study:

1. **Measurement Error**. Subjects in the Nurses Health Study periodically fill out a questionnaire about their diets. This Food Frequency Questionnaire (FFQ) has recently become the subject of concern in the scientific community. We agree with the growing conviction that the FFQ is subject to significant error, and that the specific statistical efforts made by the authors to correct for it may have actually magnified that error.

   This argument is supported by the fact that several recent cohort studies – most notably the European EPIC study, which is considerably larger and uses a different method to measure dietary intake – have reported clear associations between high fruit and vegetable intake and lower cancer risk.

2. **Statistical Ambiguity**. Subjects in the *JNCI* study may or may not be eating diets higher in fruits and vegetables than is seen in the general US population. This remains unclear because the authors chose only to provide data on the *median* fruit and vegetable intake of subjects (the "middle value" in a list), instead of the *mean* (or average) intake.

3. **Methodology.** Although evidence that fruits and vegetables protect against cancer is particularly strong from population studies, case-control studies, and experimental studies, the specific evidence from cohort studies is not yet strong. As noted above, cohorts that are using better, less error-prone means to assess the diet may soon provide this missing evidence, but it is possible that cohort studies are simply not ideally suited to detecting an association between diet and cancer.

   Cancer is a process that develops over a lifetime, and the chief dietary triggers may occur too early in life, or too diffusely over the course of a lifetime, to be detected by anything but the largest long-term cohorts involving subjects eating markedly different diets.

AICR has devoted itself to the study of diet, physical activity and cancer prevention. My colleagues and I have embarked upon the process of updating our Expert Report, because we are mindful that the amount of research in this field is growing rapidly, as is public confusion about its practical import.

When completed in 2006, the Second AICR/WCRF Expert Report will place this study in its proper context, by considering its findings alongside evidence from over 10,000 other diet-cancer studies. Until this comprehensive project is completed, however, the public should keep in mind that any new study only adds to the scientific discourse. It should not and can not close it down.

To the millions of Americans who are deeply concerned about reducing their risk of getting cancer, we want to say this: This is only one study, with all the weaknesses inherent to its kind. It is contradicted by literally hundreds of earlier studies. Do not let this one study discourage you from striving to increase the proportion of vegetables and fruit in your meals and snacks. When all of the results are in, eating a plant-based diet, increasing physical activity and maintaining a healthy weight will remain the three most important things you can do to stop cancer before it starts.